Contrast enhanced EUS for evaluation of mural nodule in pancreatic cystic neoplasm (with video)

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A 58-year-old male, chronic alcohol consumer, presented with upper abdominal discomfort of 2 months duration. There were no co-morbidities. The blood haematological and biochemical parameters were within normal range. Ultrasound and contrast enhanced (CE) computed tomography done elsewhere revealed a 3.4 cm cystic lesion adjacent to the neck of pancreas and he was referred to us for EUS. EUS was performed using a linear echoendoscope (EG-3870 UTK linear echoendoscope, Pentax Inc., Tokyo) under conscious sedation using intravenous midazolam and after giving antibiotic prophylaxis with intravenous ciprofloxacin. EUS confirmed the presence of an anechoic cystic lesion adjacent to the neck of pancreas [Figure 1]. A globular echogenic lesion (2.2 cm in diameter) arising from the cyst wall and protruding into the cyst lumen was seen [Figure 1]. Small anechoic lesions without vascularity were noted in this echogenic lesion suggestive of small cysts [Figure 2]. Thereafter, CE-EUS was performed after intra-venous injection of 2.4 ml of Sonovue (Bracco, Milan, Italy) microbubble contrast followed by a 10 ml push of normal saline and using low mechanical index. On CE-EUS, the echogenic lesion appeared hyper-enhancing suggestive of a mural nodule [Figure 3 and Video 1]. Thereafter, EUS guided fine needle aspiration (FNA) was performed using a 22G needle (Echo Tip, Wilson Cook, North Carolina, USA). After puncturing the cyst wall, the needle was introduced to the centre of the cyst avoiding the mural nodule. The stylet was then removed and the cyst fluid continuously aspirated until the lesion was completely emptied [Figure 4]. After emptying the cyst and aspiration of all the cyst fluid, the mural nodule was sampled separately in the same needle pass so as to

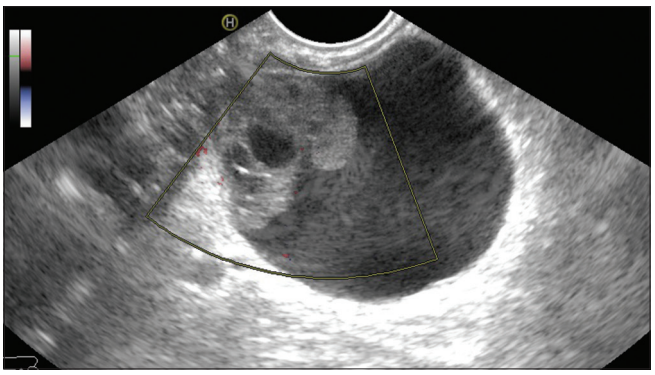

Figure 1. EUS: Anechoic cystic lesion adjacent to the neck of pancreas with a globular echogenic lesion arising from the cyst wall and protruding into the cyst lumen

Video Available on: www.eusjournal.com

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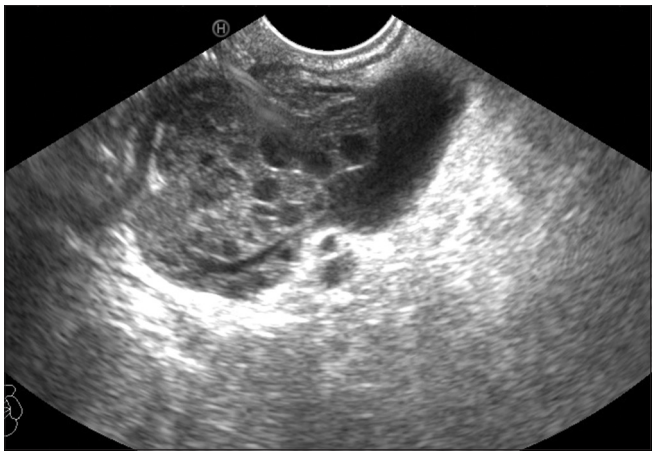

Figure 2. Small anechoic lesions without vascularity present in the echogenic lesion suggestive of small cysts

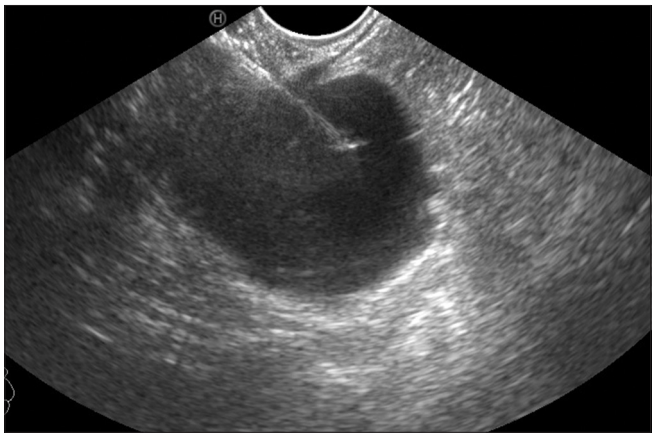

Figure 4. EUS guided aspiration of the cyst fluid

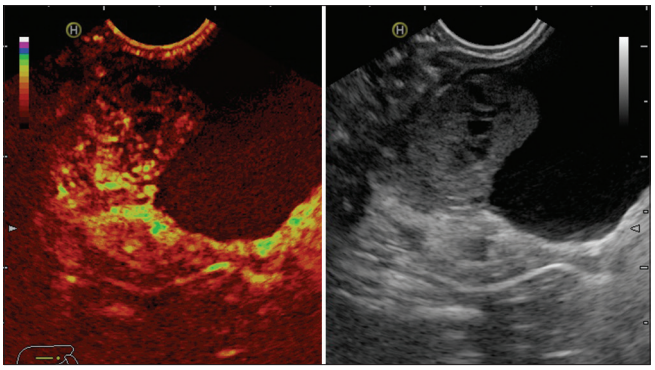

Figure 3. Contrast enhanced-EUS: The echogenic lesion is hyper-enhancing suggestive of a mural nodule

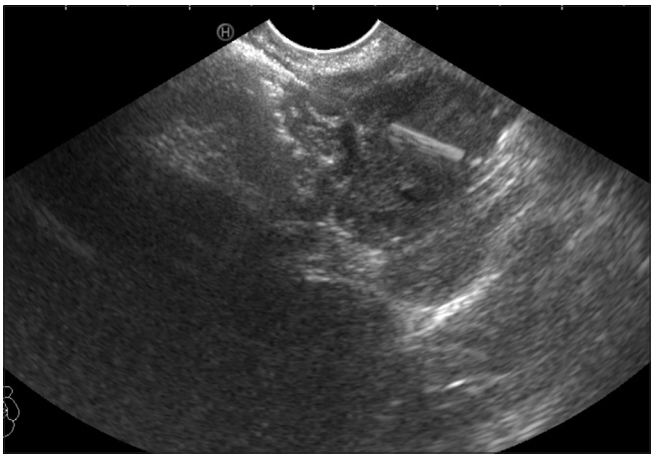

Figure 5. EUS guided FNA of the mural nodule performed after complete aspiration of the cyst fluid

decrease the risk of infection [Figure 5]. The string sign performed on the cyst fluid was positive and the fluid carcino-embryonic antigen was elevated (116 ng/ml). No malignant cells were observed in the cytological examination of both the cyst fluid and mural nodule. The molecular analysis of cyst fluid revealed KRAS mutations in exon 2 codons 12. Thereafter, patient underwent surgery and histopathological examination of resected specimen confirmed the diagnosis of mucinous cystic neoplasm with low grade dysplasia.

EUS provides high resolution images of the entire pancreas without any interference from the bowel gas and therefore appears to be an ideal imaging modality for evaluation of pancreatic cystic lesions (PCL). EUS can provide detailed information about the size of the PCL along with locularity, septations, mural nodules, and the relationship with the pancreatic duct.[1] Despite the ability of EUS to provide high contrast as well as resolution images of PCL's and demonstrate both the cyst septations and mural nodules, sometimes it may be difficult to distinguish true mural nodules from mucous plugs, debris, or necrotic tissue.[2] CE-EUS has been reported to be more accurate for the detection of mural nodules.[3] CE-EUS has a unique ability to detect the micro-circulation with better resolution and therefore the mural nodules will appear enhancing whereas the mucin plugs will be nonenhancing after intra-venous contrast injection. EUS guided fine needle sampling of the cyst fluid as well as mural nodule and cyst wall provides important additional information that helps in the differential diagnosis of PCL.[1,3] Infection of the cyst is one of the common reported adverse effects of EUS-FNA and therefore following precautions should be followed while doing this procedure:

- Antibiotic prophylaxis should be given[1]
- The stylet should not be pushed back into the needle while the needle is inside the cyst
- Multiple needle passes should be avoided as it increases risk of gastric or duodenal contamination from repeated punctures
- An attempt should be made to completely empty the PCL
- The mural nodule/cyst wall should be sampled after

completely emptying the cyst in the same needle puncture.

In conclusion, EUS, CE-EUS and EUS guided FNA play an important role in the diagnostic evaluation of PCL.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. But DY, Poley JW. To fine needle aspiration or not? An endosonographer's approach to pancreatic cystic lesions. *Endosc Ultrasound* 2014;3:82-90.
2. Iwashita T, Uemura S, Mita N, *et al*. Utility of endoscopic ultrasound and endoscopic ultrasound-guided fine-needle aspiration for the diagnosis and management of pancreatic cystic lesions: Differences between the guidelines. *Dig Endosc* 2020;32:251-62.
3. Fujita M, Itoi T, Ikeuchi N, *et al*. Effectiveness of contrast-enhanced endoscopic ultrasound for detecting mural nodules in intraductal papillary mucinous neoplasm of the pancreas and for making therapeutic decisions. *Endosc Ultrasound* 2016;5:377-83.